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REMARKS

Claims 1-43 are pending in this application, claims 1 and 24 being the independent claims.

The indication of allowability of claims 3, 6-14, 26, and 29-37 is gratefully acknowledged. However, since independent claims 1 and 24 are believed to be allowable, claims 3, 6-14, 26, and 29-37 have not been rewritten in independent form at this time.

Claim 4 stands rejected under 35 U.S.C. 112, second paragraph for a lack of antecedent basis. Specifically, the Examiner states that there is no antecedent basis for the limitation "the port." Claim 4 have been amended to provide the appropriate antecedent basis. Accordingly, Applicants respectfully request that the rejection of claim 4 under 35 U.S.C. 112, second paragraph, be reconsidered and withdrawn.

Claims 1-2, 4-5, 15-25, 27-28 and 38-43 stand rejected under 35 U.S.C. 102(e) as being anticipated by Giles, U.S. Patent No. 5,481,391. These rejections are hereby traversed for at least the following reasons.

As set forth in claim 1, the present invention provides a hermetically sealed module (e.g., OAM module 200 seen in FIG. 2) to be located in an external pressure vessel (e.g., pressure vessel 100 seen in FIG. 1) providing protection from external pressure in an undersea environment. The hermetically sealed module includes at least one optical amplifier and an hermetically sealed housing for containing the optical amplifier. The housing has a retaining element for retaining the housing within the external pressure vessel. The module also includes a plurality of ports for conveying into the housing, in an hermetically sealed manner, at least one optical fiber and a conductor incorporated in an undersea optical fiber cable. The conductor supplies electrical power to the optical amplifier. At least one conductive terminal is located in the housing for establishing electrical contact with the conductor traversing each of the plurality of ports. The conductive terminal supplies electrical power from the conductor to the optical amplifier.

As a result of this arrangement, the pressure vessel provides protection to the hermetically sealed module from external sources of pressure and tension while the hermetically sealed module provides a hermetic seal for the various components that are contained therein. One important advantage of the invention is that the hermetically

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sealed module is a sealed device in which its operational details are not discernable, except through defined optical, electrical and mechanical interfaces. Thus, the party responsible for integrating the hermetically sealed module within the pressure vessel only needs to connect it along these interfaces and the hermetically sealed module will function to its design parameters. No other action needs to be taken by the integrator. In this way the hermetically sealed modules, which generally contain complex electronic and optical components, can be built up as separate sub-assemblies from the mechanics of the pressure vessel, thereby providing more flexibility in manufacturing. Moreover, the integration between the pressure vessel and the hermetically sealed module can take place in a different location from where the hermetically sealed modules are manufactured, but since the hermetically sealed module is a sealed functional unit, it can be transported and stocked without concern that its internal electronic and optical components will be damaged.

Giles, U.S. Patent No. 5,481,391, relates to a transoceanic optical communication system (see FIG 1 of the patent) showing a plurality of spaced amplifier stations 12 that each contain an optical amplifier 60 (see FIG. 3 of the patent). A transoceanic cable 14 forms the overall communication link of the fiber optic communication system between a transmitter 16 and receiver 18 (see FIG. 1 of the patent). The optical amplifiers 60 associated with each station 12 are contained in pressure sealed housings 19 and are typically spaced 30 to 100 km apart from one another.

The Examiner asserts that the claimed hermetically sealed housing corresponds to one of the amplifier stations 12. Since each amplifier station 12 is stated in the patent to include a pressure sealed housing 19, Applicants presume that the Examiner is more specifically asserting a correspondence between the claimed hermetically sealed housing and the pressure sealed housing 19.

In Giles, the optical amplifiers 60 appear to be located directly in pressure sealed housing 19. That is, there is no provision for situating the optical amplifiers 60 in a sealed module that is separate and independent from the pressure vessel (such as the claimed hermetically sealed housing). In other words, Giles completely fails to show or suggest any element or feature that corresponds to the claimed hermetically sealed housing. As a result, Giles cannot achieve any of the aforementioned advantages achieved by the present invention. Since Giles, alone or in combination with any of the other references

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noted by the Examiner, fails to show or suggest the claimed hermetically sealed housing, Applicants respectfully request that the rejection of claim 1 and the claims that depend therefrom be reconsidered and withdrawn.

The remaining independent claim, claim 24, and the claims that depend therefrom are believed to be allowable for at least those reasons presented above in connection with claim 1. Accordingly, it is respectfully requested that the rejection of claims 24 and the claims that depend therefrom under 35 U.S.C. 103(a) as being unpatentable over Giles be reconsidered and withdrawn.

Conclusion

In view of the foregoing, it is believed that the application is now in condition for allowance and early passage of this case to issue is respectfully requested. If the Examiner believes there are still unresolved issues, a telephone call to the undersigned would be welcomed.

Fees

If there are any fees due and owing in respect to this amendment, the Examiner is authorized to charge such fees to deposit account number 50-1047.

Respectfully submitted,

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